Additional information

The UV–vis absorption spectrum of purified and separated AuNWs is reported below in figure 1. It shows a peak at 525 nm due to surface plasmon resonance of the nanostructured Au metal.

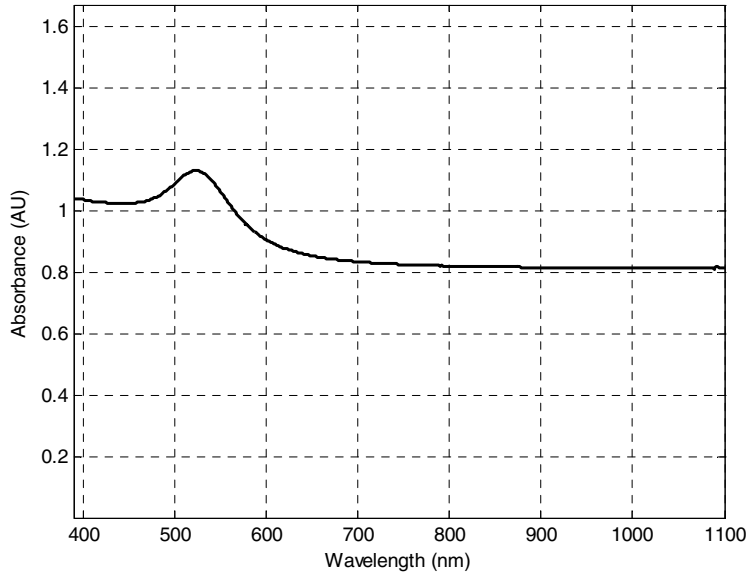

Figure 1. UV–vis spectrum of twinned AuNWs discussed in this paper.

For comparison, we synthesized well monodispersed OA-capped Au nanoparticles of similar lateral size as the AuNWs (i.e. diameter of 10–15 nm) using a different protocol. The UV–vis absorption spectrum for the nanoparticles (not reported here) looks essentially identical to the one in figure 1, except from a very slight broadening of the peak. Therefore, the spectrum is dominated by the transverse plasmon resonance, while we attribute the absence of the longitudinal peak to the disorder created by the high density of twins in the long [111] axis direction.